Humanities & Social Sciences Reviews
eISSN: 2395-6518, Vol 7, No 6, 2019, pp 192-196
https://doi.org/10.18510/hssr.2019.7637

INSTITUTIONAL ASPECTS OF THE CLUSTER DEVELOPMENT OF THE REGIONAL ECONOMIC SYSTEM

I. L. Beilin[1*], V. V. Khomenko[2], N. V. Kalenskaya[3]
[1,2,3]Institute of Management, Economics, and Finance, Kazan Federal University, Kremlyovskaya Street, Kazan, Russian Federation.
Email: *i.beilin@rambler.ru

Article History: Received on 27th September 2019, Revised on 30th October 2019, Published on 19th November 2019

Abstract

Purpose: The heterogeneity of the economic space has intensified in recent years in the process of transition and laying the foundations of a market economy in the CIS countries, as well as in the EU regions, due to its expansion. This unevenness was manifested as a result of different starting levels of economies, different resource endowments, the choice of their targets and priorities for socio-economic development, and the increased authority of local authorities.

Methodology: This is analytical-logical research that has been done through content analysis and documentary and library research.

Result: Problems of market fiasco in the regions, as well as the important role of local institutions in regional development are also noted in the EU and serve as a strong argument for the need for government intervention in regional policy, primarily from the standpoint of regulating the innovation sphere, financial assistance to create jobs or clusters capable of self-development.

Applications: This research can be used for universities, teachers, and students.

Novelty/Originality: In this research, the model of Institutional aspects of the cluster development of the regional economic system is presented in a comprehensive and complete manner.

Keywords*: economics, econometrics, economic and mathematical modeling, the theory of economics, regional economy, innovation management.*

INTRODUCTION

Approaches to the concept of "cluster" are generally similar, the definition of this category is based on the wording proposed by M. Porter, however, there are some peculiarities in the essence and content of this phenomenon depends on the purpose of creating clusters. The advantages of the cluster model of economic development traditionally include: stimulating business development, innovation, and entrepreneurial activity, regional growth; formation of knowledge economy; promotion of cooperation and competition; productivity growth. All these advantages are characteristic of European countries however, there is a lack of information about the “cluster landscape” for making management decisions (Al-Qahtani, Elcamel, Ponnambalam, 2008; Hansen, 2015).

In Europe, there are two opposite trends of clustering - on the basis of inter-sectoral relations, as well as on the basis of territorial location (“industrial areas”). The European model of cluster development is characterized by a significant number of clusters of a small scale. According to the European Cluster Observatory in Europe, there are more than 2000 regional clusters, of which only 7% belong to world-class clusters. On the one hand, global clusters are necessary for international competition, but clusters existing in Europe contribute to the sustainable development of regions at the local level. Cluster strategies of both types are not mutually exclusive and can coexist with the goal of cooperation of the companies participating in the clusters.

An important distinguishing feature of the development of industrial innovation clusters, from the point of view of M. Porter and many other researchers, is the combination of cooperation and competition: firms cooperate and simultaneously compete with each other. This paradoxical effect of coexistence within the cluster is called co-competition. In this case, the clusters of companies compete with each other in the markets for goods and production factors and cooperate to obtain funding from governments, in the development of new markets and technologies (LeSage, Fischer, 2008; LeSage, Parent, 2007; Deberdieva, & Shterbova, 2015).

One of the most successful examples of the formation of innovative industrial clusters, within one region is the experience of Germany. Industry and inter-sectoral networks of companies established within the federal state of North Rhine-Westphalia, allow regional authorities to form their own international brand. With the help of this umbrella brand, 16 clusters are actively developing in such major areas as: chemical industry, plastics, automotive, logistics, healthcare, energy, information and communication technologies, food industry, biotechnology, nano / micro materials (Gibbons, Overman, 2012; Corrado, Fingleton, 2012; Beilin, Arkhireev, 2009; Beilin, Arkhireev, Galibeev, 2006; Chen, Xiaohong and Demian Pouzo, 2015; Edward, Leamer, 2008; Fisher, LeSage, 2013).

METHODS

Economy optimization models aim to achieve the greatest effectiveness (efficiency) of the use of existing potential and

Humanities & Social Sciences Reviews
eISSN: 2395-6518, Vol 7, No 6, 2019, pp 192-196
https://doi.org/10.18510/hssr.2019.7637

resources. Any economic-mathematical model is a reproduction of the links between economic phenomena and processes. The criteria for an optimal plan may be different, therefore, in a general form, an optimal combination of the goal and the means of socialist production is implied by the intensive use of all available possibilities. The objective function and constraints are expressed in mathematical form, and their solution by linear programming methods allows you to find the best option. The simplex method can be successfully used to optimize a load of interchangeable equipment with a wide range of products, as well as to determine the amount of production capacity of equipment and sites under optimal conditions and establish the production program of the facility. To optimize the production program, a number of static economic and mathematical models have been developed, based on linear programming methods and with sufficient accuracy describing the capabilities of an oil refinery. The optimality criteria are the maximum profit, minimum cost.

RESULTS AND ITS DISCUSSION

The problem of balanced, proportional development of the economy is of particular relevance in the context of the need to improve the standard of living of the population of the regions. The transition of most national economies to the implementation of a sustainable development strategy, which involves achieving a balance between the economic, social and environmental subsystems, also affects the regional level. Accordingly, there is a need to study the proportions of the regional reproduction process and the choice of priorities in the context of limited material resources.

General economic proportions reflect the role of the region in the country's economy. The most important general economic proportions between the accumulation fund and the consumption fund; labor and capital; production and non-production areas; production and non-production investments. Regional authorities can not directly manage the process of formation of general economic proportions.

Structural proportions are the ratios between the individual elements of the structure of the regional economy, which ensure its participation in the territorial division of labor and the development of the economic complex. The most important structural proportions are the ratios between: branches of specialization and servicing, auxiliary branches; mining and processing industries; the scale of development of the region’s economy and its infrastructure arrangement; scales of investment activity and branches of the building complex; agricultural development and industries processing agricultural raw materials; the need for transport services and the development of various types of transport. Violation of the structural proportions of the region leads to material damage, reduced consumer and producer gains and the appearance of social losses, which reduces the effectiveness of the development of the regional economy (Figure 1).

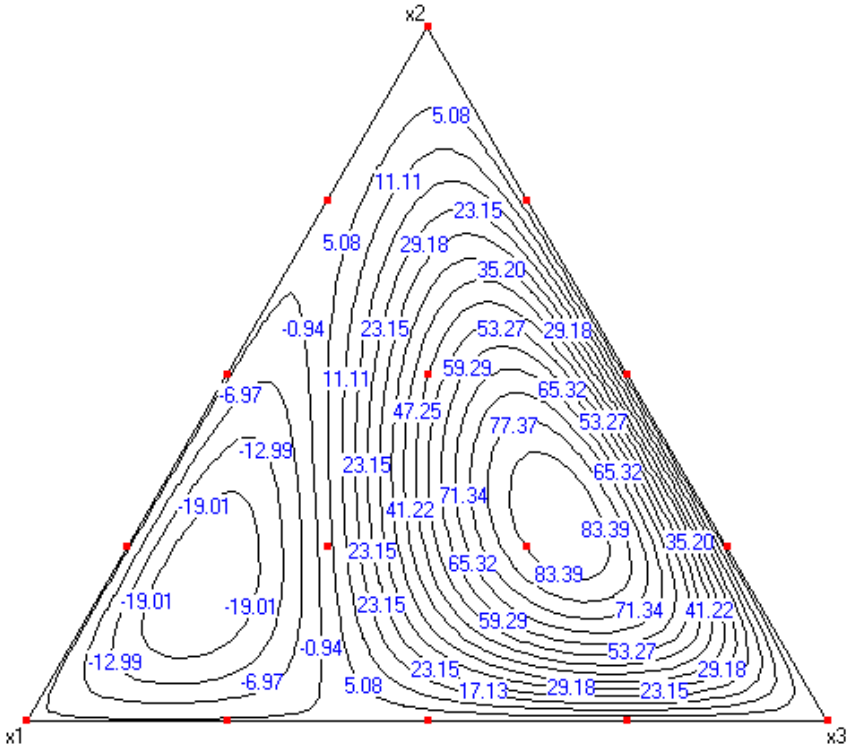

Figure1: Structural proportions as ratios between the individual elements of the structure of the regional economy

Foreign economic proportions - reflect the relationship between: export and import of the region, as well as between their growth rates; foreign investment in the region and capital outflow from the region; the receipt of foreign currency in the region and its outflow from the region; the share of raw materials and the share of finished products in the region’s exports. This group of proportions affects the level and quality of life of the population of the region, especially in the conditions of the unstable exchange rate of the national currency.

Humanities & Social Sciences Reviews
eISSN: 2395-6518, Vol 7, No 6, 2019, pp 192-196
https://doi.org/10.18510/hssr.2019.7637

Socio-economic proportions to the greatest extent, reflecting intra-regional problems, the solutions of which is the direct function of regional authorities. The most important socio-economic proportions are the relations between: personal and social consumption; supply and demand in the regional consumer goods and services market; population size and housing development; housing and public services; population size and development of the non-production sphere and its structure. These proportions reflect the standard of living of the population and their balance should be a priority in a socially-oriented economy.

Economic and demographic proportions reflect the interrelations of the demographic and economic processes of regional reproduction. The most important economic and demographic proportions are the ratios between the growth and retirement of labor resources; gender and age structure of the population; human resources and the availability of jobs; employed in production and non-production areas; urban and rural populations; the number and level of development of social infrastructure; the number of employed and non-working population of working age. This group of proportions determines the migration processes in the region.

Economic and environmental proportions characterize the relationship between the capacity of the natural potential and the level of socio-economic development of the region. The most important economic and ecological proportions are the ratios between the raw material potential and the production possibilities of its use; development of production and level of environmental activities; potential resource capabilities and maximum permissible production load; exploitation and reproduction of natural resources. The formation of this group of proportions involves the development of balances for each type of natural resources and a policy for their use.

Financial and economic proportions are associated with the circulation of material and financial and monetary resources and reflecting the distribution of competences between the management structures. The most important financial and economic proportions are the ratios between: the net output produced and the national income used in the region; regional budget and resources necessary for the implementation of the functions of regional authorities; shares of taxes and payments received in the republican and regional budgets; internal and external financial sources ensuring the development of the region; gross regional product created and reproduction resources used. Financial and economic proportions unite all proportions into the system of the regional production process (Figure 2).

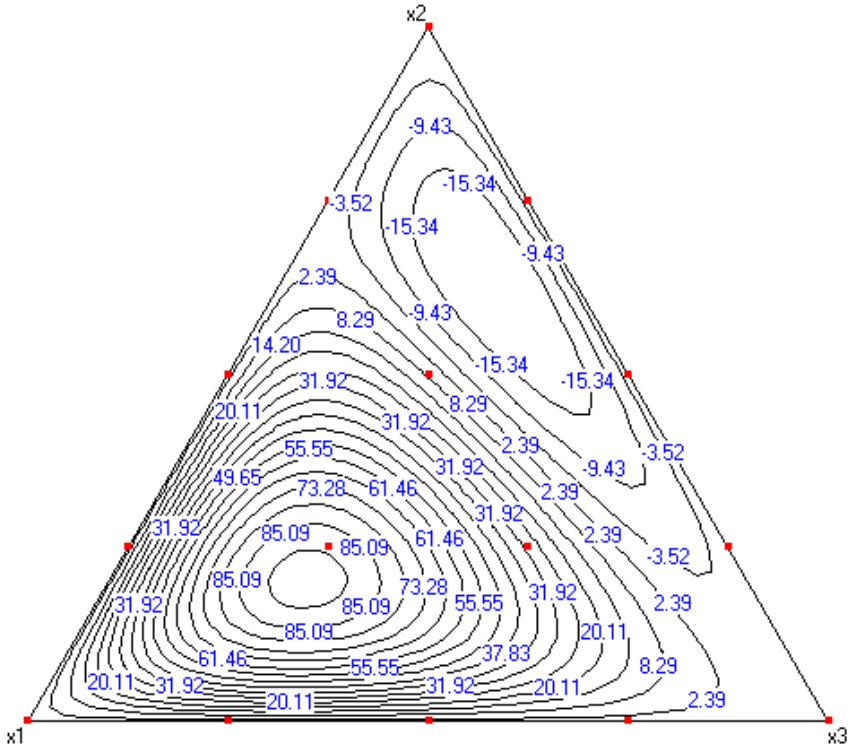

Figure 2: Financial and economic proportions, uniting all the proportions in the system of the regional production process

The formation of an institutional environment in the constituent entities of the Russian Federation means the creation of appropriate market-oriented motivational attitudes for economic activities of regional entities that are adequate to the conditions of general economic development. The institutional basis of the economic policy of sustainable development at the regional level is constituted by legal, economic and organizational factors influencing the process of the socio-economic development of the region. The combination of these factors materializes into specific forms of activities within the framework of the regional economic policy aimed at improving intersubjective ties in conditions of free exchange.

CONCLUSION

The proportional development of the economy is faster achieved in the conditions of market relations since the mechanism of market equilibrium is self-regulating. However, in cases of market fiasco (the presence of a monopoly and the need to stimulate or level externalities, the provision of public goods, the emergence of asymmetric information, the presence of depressed regions), it is necessary to strengthen government intervention. Thus, among the main directions of regional economic development in the first and beginning of the second decades of the current century, it should be noted: the convergence of regional and economic policies; the formation and development of the innovation system of the regions, as part of the national innovation system, the important role of universities in these two systems; the need to overcome regional monopolism, both political and economic; clusterization of the regional economy by industry and geography; the desire to ensure proportionality and balance of regional development.

The institutional aspect of government management of regional socio-economic development is largely due to the imperfection of the market mechanism, the inability to solve social problems both at the general economic and regional levels, and the low productive potential of the regions. The institutional environment for the development of regional economic policy is the intellectual result of the management activities of people, social structures and the state. It forms the corresponding intergovernmental relations, which ultimately affect the transaction costs of human activity. At the present stage of development of social production, the economic interaction of management institutions is realized in the conditions of the multilevel structure of the regional organization of society, based on the principles of federalism and local self-government. From this, it follows that the problems of building an effective regional socio-economic system capable of self-regulation and adaptation are not solved only at the federal level, but for the most part are projected onto the regional level.

ACKNOWLEDGMENT

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

REFERENCES

1. Al-Qahtani K., Elcamel K., Ponnambalam K. (2008). Robust Optimization for Petrochemical Network Design under Uncertainly // Ind. Eng. Chem. Res. No. 47. P. 3912–3919. https://doi.org/10.1021/ie0713184
2. Beilin I.L., Arkhireev V.P. (2009) New copolymer products from cyclic carbonates and isocyanate-containing compounds // Protection of Metals and Physical Chemistry of Surfaces. Vol. 45 (4), pp. 450-454. https://doi.org/10.1134/S2070205109040133
3. Beilin I.L., Arkhireev V.P., Galibeev S.S. (2006) Copolymerization of cyclic carbonates with isocyanates under anionic initiation conditions and structure of the new copolymers // Russian Journal of Applied Chemistry. Vol. 79 (1), pp. 133-136. https://doi.org/10.1134/S1070427206010277
4. Chen, Xiaohong and Demian Pouzo (2015): Sieve Wald and QLR inferences on semi/nonparametric conditional moment models, Econometrica, 83, 1013-1079. https://doi.org/10.3982/ECTA10771
5. Corrado L., Fingleton B. (2012). Where is the economics in spatial econometrics? Journal of Regional Science, 52 (2), 210–239. https://doi.org/10.1111/j.1467-9787.2011.00726.x
6. Deberdieva, EM & Shterbova, YV (2015). 'Prospects of development of oil-gas in the Tyumen region', Economy and Entrepreneurship, no. 10-2 (63-2), p. 219-221.
7. Edward E. Leamer (2008). "Specification problems in econometrics," The New Palgrave Dictionary of Economics. Abstract. Archived 23 September 2015 at the Wayback Machine. https://doi.org/10.1057/978-1-349-95121-5_1287-2
8. Fisher M., LeSage J. (2013). A Bayesian space–time approach to identifying and interpreting regional convergence clubs in Europe. Paper presented at 53rd ERSA conference, Palermo, August 27–31.
9. Gibbons S., Overman H. G. (2012). Mostly pointless spatial econometrics? Journal of Regional Science, 52 (2), 172–191. https://doi.org/10.1111/j.1467-9787.2012.00760.x
10. Hansen, Bruce E. (2015): The Integrated Mean Squared Error of Series Regression and a Rosenthal Hilbert-Space Inequality, Econometric Theory, 31, 337-361. https://doi.org/10.1017/S0266466614000322
11. LeSage J. Parent O. (2007). Bayesian model averaging for spatial econometric models. Geographical Analysis, 39 (3), 241–267. https://doi.org/10.1111/j.1538-4632.2007.00703.x
12. LeSage J., Fischer M. (2008). Spatial growth regressions: Model specification, estimation and interpretation. Spatial Economic Analysis, 3, 275–304. https://doi.org/10.1080/17421770802353758
13. Veselovsky, M. Y., Pogodina, T. V., Idilov, I. I., Askhabov, R. Y., & Abdulkadyrova, M. A. (2015). Development of financial and economic instruments for the formation and management of innovation clusters in the region. Mediterranean Journal of Social Sciences, 6(3), 116. https://doi.org/10.5901/mjss.2015.v6n3p116
14. Asheim, B. T., & Coenen, L. (2006). Contextualising regional innovation systems in a globalising learning economy: On knowledge bases and institutional frameworks. The Journal of Technology Transfer, 31(1), 163-173. https://doi.org/10.1007/s10961-005-5028-0

15. Schienstock, G. (Ed.). (2004). Embracing the knowledge economy: the dynamic transformation of the Finnish innovation system. Edward Elgar Publishing.
16. Schienstock, G. (Ed.). (2004). Embracing the knowledge economy: the dynamic transformation of the Finnish innovation system. Edward Elgar Publishing.
17. Steiner, M. (2006). Do clusters 'think'?: An institutional perspective on knowledge creation and diffusion in clusters. In Clusters and regional development (pp. 217-235). Routledge.
18. Agarkova, L., Gurnovich, T., Filonich, V., Shmatko, S., & Podkolzinaa, I. (2016). Priority directions of development of innovation education cluster in the regional agro-industrial complex. International Journal of Economics and Financial Issues, 6(2), 718-727.
19. Coenen, L., Moodysson, J., & Asheim, B. T. (2004). Nodes, networks and proximities: on the knowledge dynamics of the Medicon Valley biotech cluster. European Planning Studies, 12(7), 1003-1018. https://doi.org/10.1080/0965431042000267876
20. Uyarra, E. (2010). What is evolutionary about 'regional systems of innovation'? Implications for regional policy. Journal of evolutionary economics, 20(1), 115. https://doi.org/10.1007/s00191-009-0135-y